REMARKS

Claims 1-32 were originally filed. In response to a restriction requirement issued by the Examiner applicants elected to prosecute claims 1-24 directed to the invention of improving resolution of a digital representation. Applicants affirm that election herein. In further response to the restriction requirement, applicants have now canceled claims 25-32 directed to constructing a chain-code-addressable look-up table. Applicants reserve the right to present the subject matter of such canceled claims in a divisional application at an appropriate time.

Of the remaining claims 1-24, claims 1, 2, 4-10, 12-18 and 20-24 are pending, claims 3, 11 and 19 having been canceled as a result of respective amendments made to independent claims 1, 9 and 17. In view of these amendments to the independent claims, each of claims 2, 10 and 18 has been rewritten recite a further feature of the invention. Each of claims 4-7, 12-15 and 20-23 has been amended simply to be consistent with the amendments to its intervening and base claims. Reconsideration is respectfully requested in light of the amendments and remarks made herein.

Turning now to the art rejections, claims 1-5, 8-13, 16-21 and 24 have been rejected under 35 U.S.C. § 103(a) based on U.S. patent 5,537,495 to *Overton* in view of U.S. patent 5,448,692 to *Ohta*. *Overton* is directed to improving the rendering of a pixel pattern. Initially, an original pixel pattern is placed in a bit mapped memory. Small blocks of this bit mapped pattern (input tiles) each serve as addresses to a look-up table containing corrected pixel pattern portions (output tiles) corresponding to target pixels to be corrected in the respective input tiles. The corresponding output tiles are then printed at a higher dpi than the original pixel pattern to provide corrected higher resolution patterns. In deriving each output tile, a high resolution bit map is created by scaling the input tile. A triangular portion of each convex corner in the high resolution bit map is chopped off while a triangular portion of each concave corner in such bit map is filled in. The resulting high resolution bit map is then low pass filtered. The size of these triangular portions and the extent of the filtering are determined using a function based on the vulnerability of pixels to being

eliminated during the smoothing process. The middle portion of the high resolution bit map corresponding to the to-be-corrected original target pixels is then divided up into a number of pixel areas, where each area represents a pixel to be printed. Each of these pixels is then compared to a threshold to determine the corresponding output pixel to be stored or rendered.

Applicants' claimed invention is quite different. As specified in each of their independent claims 1, 9 and 17, for each identified text or graphics boundary pixel, a group of pixels is traced, including the initial boundary-identified pixel, that constitute a local boundary segment, and a chain-code is constructed for that local boundary segment. The chain-code is indicative of the number and relative locations of the pixels of that segment. The segment is then parameterized and smoothed, resulting in a new local boundary segment by accessing instructions stored in a look-up table (LUT) using the constructed chain-code as an index to the LUT.

Overton does not identify text or graphics boundary pixels. More importantly, he neither discloses nor teaches the tracing, chain-code constructing and parameterizing aspects of applicants' claimed invention.

These deficiencies are not offset by *Ohta*. That secondary reference is directed to a device that is capable of effecting various kinds of image processing, such as erasing, italicizing and shadowing, and blanking with a particular area of an image. A contour tracing procedure is employed which involves sequentially tracing contour pixels counterclockwise or clockwise beginning and ending with the same pixel. The counterclockwise tracing direction is used for an outer contour line and the clockwise direction for an inner clockwise direction. See *Ohta*, col. 9, lines 33-48. This tracing is clearly different than the tracing recited in applicants' independent claims. No chain-code indicative of the number and relative locations of the pixels in a particular segment is constructed and used as an index to a LUT in parameterizing and smoothing the segment, as claimed by applicants.

Generating LUT indices via a chain-code in connection with the boundary tracing in the manner claimed by applicants advantageously makes access to the

LUT easy and avoids unnecessary computations. As a result, boundary segments located in the input representation can be processed more quickly and efficiently. The cited references simply do not teach the features

Each of claims 2, 10 and 18 add the further feature that the tracing involves searching and identifying each new pixel in the group with respect to a propagated background neighbor pixel. None of the cited references disclose or teach this feature.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration of the present application.

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